BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Certificate in Engineering Pearson BTEC International Level 3 Subsidiary Diploma in Engineering Pearson BTEC International Level 3 Foundation Diploma in Engineering Pearson BTEC International Level 3 Diploma in Engineering Pearson BTEC International Level 3 Diploma in Electrical/Electronic Engineering Pearson BTEC International Level 3 Diploma in Mechanical Engineering Pearson BTEC International Level 3 Diploma in Digital Engineering Pearson BTEC International Level 3 Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Diploma in Aeronautical Engineering Pearson BTEC International Level 3 Extended Diploma in Engineering Pearson BTEC International Level 3 Extended Diploma in Electrical/Electronic Engineering Pearson BTEC International Level 3 Extended Diploma in Mechanical Engineering Pearson BTEC International Level 3 Extended Diploma in Digital Engineering Pearson BTEC International Level 3 Extended Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Extended Diploma in Aeronautical Engineering
Unit number and title	**Unit 56: Industrial Robotics**
Learning aim(s)	D: Produce a program for an industrial robot to solve an engineering problem.
Assignment title	3 Program an industrial robot to solve an engineering problem.
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	Your manager has been pleased with the way that you have safely carried out all the tasks on industrial robots as part of your Engineering Traineeship. Your next tasks require you to develop skills needed to program an industrial robot to solve an engineering problem.

Task 1	**Develop and optimise** a program for an industrial robot to solve an engineering-based problem as defined by the client brief. Keep a portfolio of evidence including a log of all activity carried out, photographs, different versions

	of the annotated code, and records of testing, as evidence that the work is your own. You need to: a) Design a program, using standard techniques, for an industrial robot to safely solve an engineering-based problem. b) Write the program using an appropriate Integrated Development Environment (IDE). c) Test the program in simulation mode. Debug and modify the program as necessary to meet the client brief and to ensure the robot operates safely and accurately / efficiently while in motion. d) Obtain **approval** from your tutor before testing the program in the live environment using an appropriately configured robot. Then complete tests in a safe incremental manner using a range of speeds and carry out conformation checks against the client brief. Record the outcome of the tests and make any further adjustments to optimise the program in terms of safety, accuracy of operation and efficiency of motion. e) Obtain **approval** from your tutor before testing the program to control the robot in a continuous loop automatically. Record the outcome of the tests and make any further adjustments to optimise the program in terms of safety, accuracy of operation and efficiency of motion.
Checklist of evidence required	A portfolio of learner evidence (e.g. written and photographic) generated while designing and testing the program. An observation record covering the use of an IDE and of the solution in operation including in simulation mode and in the live environment.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
D.D3	Optimise a functional program for an industrial robot by testing that it performs efficiently, safely and operates as intended.
D.M4	Develop a functional program for an industrial robot that operates as intended to solve a problem safely.
D.P7	Design an industrial robot program to solve a problem.
D.P8	Produce a program for an industrial robot that is tested in simulation mode and which may only partially solve a problem safely.

Sources of information to support you with this Assignment	Course notes Development exercises on using the IDE http://learnchannel-tv.com/robot/ A bank of resources, from defining industrial robotic systems through safety, co-ordinate systems, grippers, programming and more. How to draw a flowchart, https://www.edrawsoft.com/en/how-to-draw-flowchart.html A simple guide.
Other assessment	Problem design brief

materials attached to this Assignment Brief	Graduated training exercise for the IDE Instruction set for the robot (installation) Risk Assessment for working with the industrial robot. Flow chart template Test results template